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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/524,382 | 09/30/2005 | Phillip Neil Shaw | 35365.4 | 4708 |

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IP Section

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EXAMINER

SASAKI, SHOGO

ART UNIT

PAPER NUMBER

1797

MAIL DATE

DELIVERY MODE

08/03/2010

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

| | | | | |
|------------------------------|------------------------|--|---------------------|--|
| Office Action Summary | Application No. | | Applicant(s) | |
| | 10/524,382 | | SHAW ET AL. | |
| | Examiner | | Art Unit | |
| | Shogo Sasaki | | 1797 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 5/4/2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7, 9-19, 26-32 and 54-59 is/are pending in the application.
- 4a) Of the above claim(s) 11-19, 26-32, 55, 56 and 58 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7, 9, 10, 54, 57 and 59 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 04 May 2010 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____. | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____. 5) <input type="checkbox"/> Notice of Informal Patent Application 6) <input type="checkbox"/> Other: _____. |
|--|--|

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed 5/4/2010 have been fully considered.
2. The new set of additional drawing is acknowledged. The objection to the drawing is withdrawn. The application now contains Figures 1 to 6.
3. The amendments to the specification are acknowledged.
4. In response to page 5, second paragraph to page 6, first paragraph of the remarks, applicant's argument is persuasive. The 112 rejections of claims 1-7, 9, 10, 54 and 59 were not necessitated by the amendments to the claims filed 10/21/2009. As applicant states in the remarks, the rejection was directed to the original claim language and the examiner should have raised the issue in the first office action on the merits. The examiner agrees with applicant.

In response to page 6, second paragraph to page 7 of the remark (also in response to: page 9, last paragraph to page 10, first paragraph; page 11, last paragraph to page 13, second paragraph; and page 15, second paragraph), applicant's argument is persuasive. The analyzer is not recited as part of the claimed subject matter. However, lines 19-22 and the preamble of claim 1 set forth the environment in which the claimed device for supplying the analyzer with diluted sample fluids is used. Therefore, the last limitation in claim 1 directed towards a pump controller capable of controlling the pump means comprising the pump and the valve to adjust the flow rates in the conduits using data received from an analyzer that receives the diluted fluid from the claimed

fluid supply device should have been previously considered. (Please see 112 rejections below regarding the phrase "arranged to."). Dependent claims regarding said controller are also considered in this office action.

For at least these reasons, the finality of the last action is withdrawn.

In response to page 7 second paragraph, it is noted that the last prior art rejections were of new grounds of rejections, since applicant's amendment necessitated the examiner to re-map the elements of the prior art to the amended claimed limitations. However this is moot. This office action is made non-final.

Furthermore, in response to page 12, second paragraph, it is understood that it is the controller that controls the pump and the valve to regulate the flow, not the mixer.

5. The 112 rejections from the previous action are partially withdrawn.

In response to page 8, second paragraph to page 9, first paragraph, it is clear that said limitation is modified by the specific structures. Thus the claims do not invoke 112(6) interpretation. The 112 rejections of claims 1-7, 9, 10, 54 and 59 from the previous action base on this ground are withdrawn.

In response to page 9, second paragraph, it is understood that applicant's claimed invention is directed to a device for supplying the analyzer with diluted sample fluids. It is clear that the analyzer is not recited as part of the claimed element. However it is noted that claim 9 attempts to limit the unclaimed analyzer to a particular analyzer. Said claim is not structurally limiting. Said claim does not structurally limit the device for supplying the analyzer with diluted sample fluids. The 112 rejections of claims 1-7, 9, 10, 54 and 59 from the previous action base on this ground are withdrawn.

In response to page 10, second paragraph, the 112 rejections are withdrawn. However the examiner maintains his claim interpretations. In view of the specification, the mixer is a part of the device where three conduits meet (e.g., [0033]-[0035]: The mixer, in general with the broadest reasonable interpretation is a junction in the fluid supply tubing or pipes.).

In response to page 11, second paragraph, claim 1 clearly specifies that the pump and the valve are elements of the pump means. The 112 rejections of claims 1-7, 9, 10, 54 and 59 from the previous action based on this ground are withdrawn.

In response to page 13, last paragraph to page 14 last paragraph, it is clear from applicant's argument that applicant intends to claim a device capable of controlling the pump and the valve using data received from an analyzer. The examiner requires applicant to amend the phrase "controller arranged to..." in claims 1, 3, 4, 7 and 54 to either controller "configured to/for..." or "programmed to/for," because the phrase makes it clear that the controller and the analyzer are (a) structurally; and (b) informationally (transferring analyzer data) and/or electrically communicated with the pump and the valve, in the working environment of the claimed device.

The control devices such as controller, computer, processors, cpu(s), logic controllers or other electrical control devices are not interpreted in the same way other mechanical elements are interpreted. It is clear from the instant application that the controller (55: e.g., [0041]) in the broadest reasonable interpretation is an electronic control device receiving information/data from the software coupled to the analyzer; or the software is a part of the control device. The phrase "arranged to" only implies a

specific special/positional arrangement of a mechanical type controller with respect to the other components of the device. If that is the case, the analyzer should be positively claimed and the structural arrangement of the claimed elements, the controller and the analyzer with data feeding software should be claimed. The examiner respectfully submits that the required amendment does not change the scope of the invention which applicant attempts to claim.

Applicant merely lists excerpts from *In re Swinehart* in the remarks. The examiner fails to see why applicant feels the decisions from this particular case are relevant to or translate to instant claims including a control device that control other structure using received data. The appealed claim in this case is directed to "a new composition of matter, transparent to infra-red rays and resistant to thermal shock, the same being a solidified melt of two components present in proportion approximately eutectic, one of said components being BaF_2 and the other being CaF_2 ." The examiner fails to see how decisions drawn from this invention relates to the electronic controller device in instant claims. The 112 rejections of claims 1-7, 9, 10, 54 and 59 from the previous action base on this ground are maintained.

6. Applicant's arguments with respect to the prior art rejection have been considered but are moot in view of the new ground(s) of rejection.

Claim Objections

7. Regarding claim 1, the recitation "analyzer" in line 19 renders said claim unclear, because it is not clear if it is the mass spectroscopic analyzer recited in the preamble of

said claim or some other analyzer. Such as an analyzer dedicated to detecting the extent of the dilution.

8. Regarding claim 4, the recitation "one or more of the pump means" renders said claim unclear. Claim 1 only recites a pump means.

Claim Rejections - 35 USC § 112

9. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

10. Claims 1-7, 9, 10, 54 and 59 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 1, it is unclear if the recitation "arrange to" in line 19 attempts to specify: (a) a specific special/positional arrangement of the controller with respect to the other components of the device; (b) informational and/or electrical communication between the analyzer, the controller, the pump and the valve; or (c) both. (See "response to Arguments" section above.)

For the purpose of this office action, the last limitation in claim 1 is interpreted to mean a pump controller capable of controlling the pump means comprising the pump and the valve to adjust the flow rates in the conduits using data received from an analyzer that the fluid supply device is used with.

Note: Proper and conventional phrases to incorporate an electronic controller process limitation(s) with patentable weight into an apparatus claim are for e.g., a

controller (computer, processors, cpu(s), logic controllers or other electrical control devices) “configured to...” or “programmed to...” for claiming a control device for performing active process steps/schemes embedded in a computer/software; or “a controller configured for...” and “programmed for...” for claiming a controller capable of performing a process limitation.

Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

13. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein

were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

14. Claims 1-7, 9, 10, 54, 57 and 59 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nicoli (US 4794806).

Regarding claims 1-3, 5-7, 54, 57 and 59, Nicoli discloses (C7-C18) an automatic sample dilution system comprising:

- a first conduit for a sample (Fig. 5: 14);
- a second conduit for a diluent (Fig. 5: 16);
- a third conduit for a diluted sample (Fig. 5: 20);
- a mixer (Fig. 5: 12-10-18) arranged to mix the sample from the first conduit with the diluent from the second conduit to form the diluted sample, said mixer being coupled to the first conduit and the second conduit such that the sample enters the mixer through the first conduit at a first flow rate and the diluent enters the mixer through the second conduit at a second flow rate, the mixer being coupled to the third conduit (C11/L34-C18);
- pump means for pumping fluid through the mixer and the third conduit, the pump means comprising a pump coupled to the third conduit (Fig. 5: 110); and a valve,

or variable constriction, disposed in one of the first and second conduits and arranged to control the first or second flow rate respectively (Fig. 5: 206 or 208);

- a pump controller (Fig. 5: 218-220) arranged to receive analyzer data (from element 122) indicative of the amount by which the sample is diluted and to control the pump means so that any of the first, second or third flow rates are adjustable with respect to one another in dependence upon the received data (e.g., C11/L46-64);
- wherein both the first and second conduits have a respective valve, or variable constriction, disposed therein and arranged to control the first and second flow rate respectively (Fig. 5: 206 and 208);
- wherein the controller is arranged to receive the analyzer data in real time from the analyser for real time adjustment of the pump means (C7-C18);
- wherein the sample contain an internal standard which comprises a predetermined amount of a known substance, and a dilution factor by which the sample is diluted is calculable by comparing the detected amount of said internal standard by the analyser with the amount of internal standard in the sample or diluent (e.g., C8/L23-30: The particulate or macromolecule of Nicoli contained in the sample fluid that can be used to measure the concentration. Using an internal standard for a sample fluid that may not contain measurable samples suspended or dissolved is obvious.);
- wherein the pump is arranged for substantially constant flow of the diluted sample to the analyser through the third conduit (C4/L30-34);

- wherein the controller is arranged to adjust the dilution factor by controlling the valve, or variable constriction (e.g., C11/L46-64);
- wherein the pump controller is arranged to provide a predetermined, initial dilution factor for the sample, and to increase or reduce the dilution factor to a second dilution factor based on initial analysis data received by the pump controller (C8/L38-42: The initial dilution requirement for a particular sample type is thought by Nicoli. Inputting such parameter into the controller of Nicoli is obvious.); and
- wherein the initial dilution factor is 100 (e.g., C6/L68; and C8/L37-46).

However, Nicoli does not explicitly teach that the mixer is arranged so that said diluted sample exits the mixer into the third conduit at a third flow rate, said third flow rate being substantially equal to the sum of the first and second flow rates.

It would have been obvious to one having ordinary skill in the art at the time of the invention to use the device of Nicoli such that the sum of the 1st and the 2nd rate is adjusted to the 3rd rate, for the purpose of increasing the third flow rate (additive of the 1st and the 2nd rate) to further complete the mixing procedure within the third conduit.

Where the general condition of the claims is disclosed in the prior art, discovering the optimum arrangement of the device to achieve a desired working parameter; or the optimum parameter of a result effect variable involves only routine skill in the art. Such discovery is of routine experimentation.

Regarding claims 9 and 10, Nicoli discloses all of the limitations as set forth above.

Nicoli does not explicitly disclose that the sample may be sent to an inductively coupled plasma mass spectrometer; or a system of mass spectrometer for analysing a sample comprising and a sample dilution pumping device according to claim 1.

It would have been obvious to one having ordinary skill in the art at the time of the invention to use the automated sample dilution system of Nicoli to feed the sample to any particular analyzer comprising a sample feeding system. Choosing a particular analyzer from a finite number of analyzers requiring a sample feeding system is obvious. Applying a known technique to a known device ready for improvement to yield predictable results only requires routine skill in the art.

Regarding claim 4, Nicoli discloses all of the limitations as set forth above.

Nicoli does not explicitly disclose wherein a dilution factor by which the sample is diluted is calculable from the ratio of the first and second flow rates.

In the device of Nicoli, the sample volume per dilution cycle and the diluent flow rate is used to calculate the dilution parameter.

The examiner asserts that using the flow rate of sample (sample volume per unit time) in conjunction with the diluent flow rate taught By Nicoli is obvious. One skilled in the art would have been motivated to express dilution factor using another formula containing a known variable (sample amount) expressed in e.g., function of unit time.

Conclusion

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shogo Sasaki whose telephone number is (571)270-7071. The examiner can normally be reached on Mon-Thur, 10:00am-6:30pm, EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jill Warden can be reached on 571-272-1267. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

SS

7/29/10

/Brian R Gordon/

Primary Examiner, Art Unit 1797